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EDITED BY WATSON DAVIS

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EDWIN E. SLOSSON, Editor
HOWARD WHEELER, Manager

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VACCINE FOR FLU TESTED ON HUMAN SUBJECTS

A vaccine for combating influenza has been developed and tested on human subjects, an article just published in the scientific magazine, "Science", reveals. Killed cultures of the newly announced influenza germ, Bacterium pneumosintes, are used. All is ready for quantity production of the vaccine if another severe epidemic should require its wide-spread use.

The article by Drs. Peter K. Olitsky and Frederick L. Gates of the Rockefeller Institute for Medical Research tells how the mild influenza epidemic of about a year ago gave these scientists new strains of the very minute and remarkable influenza germ, which they discovered about two years ago. This new supply of germs resulted in such decisive experiments on rabbits that human experimentation was undertaken.

Officers and men at the Army Medical School in Washington volunteered to submit to vaccination with killed cultures of Bacterium pneumocintes, so named because when alive it injures the lungs. Each subject was given three shots of the dead germs under his skin in a manner similar to that employed with antityphoid vaccine. The immediate reaction and inconvenience was even milder than that experienced after antityphoid vaccination. But ten days after the final injection, the blood of seven out of nine men examined contained substances, called agglutinins, which attacked and rendered harmless the influenza germs that were brought into contact with them. This showed that immunity to the disease germs had been established through the vaccination.

As a result of these first human tests, the vaccine is being offered to much larger groups of men in the United States army, the article said.

"It is not possible, of course, to determine the protective effects of these injections directly," the scientists reported. "In the event of a recurrence of epidemic influenza in the near future, however, the efficacy of vaccination with Bacterium pneumosintes as a preventive measure may be put to test."

Without waiting for this final judgment, methods have been developed so that large amounts of the influenza vaccine can be quickly produced if its widespread use should be needed in combating a severe epidemic.

Drs. Olitsky and Gates reported experiments that show that persons who have recovered from flu have protective substances in their blood similar to those produced by vaccination with the influenza germs. This indicates that having the flu once will protect against a second attack for some time, just as one attack of smallpox is as effective as a vaccination.

But larger vistas of medical progress are opened by the revelations in the article. Drs. Olitsky and Gates declare that we are at the threshold of knowledge of a group of minute microorganisms, of which the influenza germ is just the first. Bacterium pneumosintes is not the only microorganism found in the respiratory tract that flourishes without free oxygen and passes through the pores of the finest percelain filters. The Rockefeller scientists have found and cultivated other filterable organisms,which do not cause disease in rabbits. They state:

"The cultural methods recently employed in these studies may lead to the isolation of a group or groups of hitherto undescribed bacterial inhabitants of the upper respiratory tract and so they point to interesting opportunities in this field of bacteriology."

And Dr. Olitsky and Dr. Gates are careful not to claim too much for Bacteria pneumosintes, even in the face of all their evidence. They say: "On the basis of experimental observations and especially in view of the source of the cultures, their clinical and pathological effects in rabbits, their antigenic identity, and the presence of specific agglutinins in the blood serum of recently recovered influenza patients, it might seem justifiable to claim Bacterium pneumosintes to be the bacterial incitant of epidemic influenza. Such a course does not seem desirable. It seems wiser merely to report the experimental facts, and to defer decision of the precise relation which Bacterium pneumosintes bears to epidemic influenza until further experience is obtained."

DISCOVERY OF FLU GERM MADE TWO YEARS AGO

Bacterium pneumosintes, the germ suspected as being responsible for the influenza,and announced in a radio message broadcast by Dr. Simon Flexner of the Rockefeller Institute for Medical Research, has been known to Drs. Peter K. Olitsky and Dr. Frederick T. Gates, the detectives in the case, for months. They announced the identity of the guilty party in the Feb. 25, 1921 installment of a scientific serial in the Journal of Experimental Medicine.

The scientifically thrilling story of their discovery is contained in that publication under the following dates: July 15, 1920, Dec. 13, 1920, Feb. 25, 1921, and March 1, 1921, and in the Journal of the American Medical Association under dates of March 29, 1920, and March 5, 1921. The scientists had been working a year and a half before they began presenting the results of their research.

In the secretions obtained from the nasal passages of flu patients, were found many ordinary bacteria, but when these were filtered out and the animals inoculated with the substance free from the known germs, the effects of the flu were still produced by the inoculation. It was discovered that such hardened sinners as streptococci, Pfeiffer's bacteria, pneumococci, staphylococci, meningococci, were not the real agents that started the trouble, although they made things worse when they were present.

A germ which was only 0.15 to 0.3 microns in size, so small that it could go through the porcelain filter that strained out the other bacteria, was discovered to be the trouble maker present in the early stages of the disease. This Bacterium pneumosintes is not like ordinary bacteria, the scientists found.

Lungs of animals affected with it are, however, less resistant to other ordinary bacteria than those who have not been attacked by Bacterium pneumosintes.

In health, the common bacteria of the nose and throat are easily destroyed by the lung tissue, but as a result of the injuries induced by Bacterium pneumosintes they are enabled to lodge and multiply in the lungs, thus producing those serious inflammations to which the names of bronchitis and pneumonia are applied.

The Rockefeller Institute medical detectives started out on the trail which led to this discovery during the big flu epidemic of 1918-19 and got other clues during the 1920 outbreak.

Before the influenza pandemic of 1918-19, the most severe ever known, few medical men doubted that Bacillus influenza isolated by Richard Pfeiffer in 1892 was the cause of influenza. This is a small organism that is easily seen under the microscope when stained and which occurs in enormous numbers in the nasal and bronchial secretions of patients. But after the experience of the pandemic and the research that accompanied it, many believed that the causative agent was a "filterable virus" or an organism so small that it will pass through the finest porcelain just like so much pure water. This opinion rose because influenza could be caused in experimental animals by the filtrates from which Pfeiffer's bacillus had been removed, as well as by the bacillus itself thus indicating that this bacillus blamed for the disease may be only secondary and not causative.

FLU EPIDEMIC MILD HEALTH REPORTS SHOW

There is more influenza this year than last year, but less than there was year before last, according to telegraphic reports from all parts of the country received by the U. S. Public Health Service at Washington.

So far the epidemic has been comparatively mild in character, although there is a moderate increase in number of deaths from influenza and pneumonia over the same period last year. December, January, and February are the months in which the cases of the character now appearing are usually most frequent. Apparently there is now a considerable increase in flu during this seasonal period as compared with the same time last year, but the season of 1920-21 saw a greater number of cases than this year.

Although the officials admit that the number of cases of influenza reported by the state officials may not give an accurate indication of the severity of the disease, the statistics show that the disease has been reported more frequently this year than last in Massachusetts, Connecticut, New York City and State, New Jersey, Illinois, Wisconsin, Missouri, Nebraska, Delaware, Maryland, District of Columbia, Georgia, Florida, Kentucky, Alabama, Arkansas, Louisiana, Texas, New Mexico, California. Reports for the two weeks ending Jan. 20 also show a considerable number of cases present in Mississippi, West Virginia, and South Carolina but the data for last year is lacking. Many states do not make reports and the conditions in those areas are not shown in the Public Health Service reports, while many respiratory conditions resembling influenza and variously termed grippe, bronchitis, severe cold, laryngitis, are often called influenza.

The medical profession has not been able to settle on a clinical diagnosis of influenza, exdept in very severe cases, officials stated. There is a very

"widespread prevailing sickness" but most of the mild cases and some of the severe cases are never reported at all.

In years when the disease becomes pandemic, as occurred during the war, the origin and spread of influenza can be traced as it spreads along the ordinary lines of travel apparently from a definite area. During the 1918 epidemic officials were able to predict the course of the epidemic so accurately that in some cases hospitals were prepared several weeks in advance of the disease.

In years like the present, when the epidemic is comparatively mild, it is more difficult to trace its origin and spread. This suggests the possibility that there may be two different diseases which are both known by the name of influenza.

READING REFERENCE- Influenza in cities of the United States in 1922. Public Health Reports 37:331-2. Feb. 17, 1922. Vaughan, Warren T. Influenza andepidemiologic study. Baltimore, Md. Am. Jour. of hygiene 1921. Monograph series. 1.

C H A T S O N S C I E N C E

HIGHWAYS OF KNOWLEDGE

By Dr. Edwin E. Slosson

The first need of a backward country is better communications, roads and railroads, telegraphs, and telephones, so the separated settlements of the wilderness can get into touch with each other.

This world is a wilderness, scattered oases of civilization in vast areas of ignorance. Thinkers are few and far apart. Intercommunication of ideas is retarded, often stopped altogether, by the barrier of language as traffic is interfered with by a change of rail gage at the frontier. Even in the same country minds of different training fail to gear. It does not matter so much if we do not know "how the other half lives" but it is of the highest importance that we know how the other half thinks, especially that smaller fraction of humanity which is thinking for the next century, namely scientific investigators.

The amount of knowledge accumulated during the last three hundred years since man began the systematic investigation of nature looks large compared with the ignorance that preceded, but looks small when we compare it with what nobody yet knows. What is worse, this precious and painfully acquired knowledge is contained in a few small and perishable packages. I do not mean books, I mean brains. We say "knowledge is power" but the knowledge that lies in libraries has no more power than unmined coal. Can that be called "knowledge" which nobody knows? If all the books in the world were suddenly destroyed how much learning would be left? And how many heads would be holding it?

Professor J. Arthur Thomson of the University of Aberdeen puts the point in his usual effective fashion when he says in his book on "The Control of Life":

"When we think of the more effective and less wasteful exploration of the earth, or of gathering the harvest of the sea, or of making occupations more

wholesome, or of beautifying human surroundings, or of exterminating infectious diseases, or of raising the health-rate, or of improving the physique of the race, or of recognizing the physiological side of education, we are amazed at the non-utilization of valuable -though confessedly incomplete - scientific knowledge.

"Much has been done, but it must be confessed that man has been slow to follow science in the possession of his kingdom. Part of the reason is that we have not become accustomed, except in some directions, e.g., medical treatment, to believe in science; but a great part of the reason is a deficiency of character, that we do not care enough, that we lack resolution."

That is plain speaking and goes to the bottom of the difficulty. It is "deficiency of character, that we do not care enough" to even learn what little has been learned about the management of matter and especially the management of mankind. Science may be discovered by the few but it has to be applied by the many.

Waste of energy, waste of natural resources, waste of life, waste of time, all forms of waste go back to the waste of ideas. For there is already enough wisdom in the world to make the whole human race more comfortable, healthy and prosperous than any individuals have so far been. But no country is yet thoroughly civilized, even from the standpoint of our present knowledge. To bring that about we must bridge the rivers of ignorance and hew highways through the jungles of superstition.

READING REFERENCE,- Cannon, W. B. Career of the investigator. Science n. s. 34:65-72. Jl. 21, 1911. Is the public hostile to science. Lit. Digest 64:130-4, March 13, 1920.

HUMAN BLOOD VESSELS WOULD CIRCLE GLOBE TWICE

If the blood vessels of an average sized man were placed in a straight line continuously, they would reach around the globe two and one-half times, Professor August Krogh announced at Yale in the Silliman Lectures which have just been published in book form under the title "The Anatomy and Physiology of the Capillaries". professor Krogh's researches upon the capillaries at the University of Copenhagen, Denmark, during the last decade won for him the Nobel prize in 1920.

Capillaries, which are the numerous microscopic blood vessels that join the arteries bringing blood from the heart to the veins which take the blood back to the heart, Professor Krogh believes to be the most important part of the blood system. Although the capillaries are very small, their great number affords a large surface so that the blood may easily furnish nourishment and oxygen to the tissues and readily remove the waste products from them. Professor Krogh has calculated that the surface of these minute blood vessels in an average man equals the area of a city block, Their number is so great, according to this investigator, that in a single piece of muscle with the cross section the size of an ordinary pin there would be 800 of these microscopical capillaries besides 200 muscle fibers.

The capillaries have always been regarded as unimportant parts of the blood system but Professor Krogh points out that it is only while the blood is passing through them that it is able to come in close enough contact with the tissues to actually furnish them with nutriment. Each one of these capillaries has a separate nerve of its own which enables it to close or open depending on the condition

of the tissue it supplies. For example, when a muscle is being worked and needs considerable food and oxygen, nearly all the capillaries will be found open while during rest a number of them will be closed.

WASTE WOOD PRODUCES CHARCOAL AND ALCOHOL

After hundreds of unsuccessful attempts have been made to utilize small waste wood in the carbonization and wood distillation industries, Prof. O. E. Stafford, a University of Oregon man, has perfected a process that is commercially successful. A superior grade of charcoal and wood distillation products used in a number of basic industries can be obtained from mill waste under his process.

Prof. Stafford first demonstrated his process scientifically on the University of Oregon campus. He and the firm of engineers behind him have now succeeded, after several years' labor, in demonstrating it as a practical commercial process. Two wood distillation plants on the Atlantic Coast, one of them controlled by a big corporation, placed every resource at Prof. Stafford's disposal, and the success of the process was completely demonstrated.

By the new process a fine grade of charcoal can be obtained as well as the usual by-products of carbonization, acetic acid, acetone and wood alcohol, basic in the manufacture of such articles as dye, paints, varnishes, celluloid, smokeless powder and artificial leather. A considerable amount of charcoal is used in the chemical industry; for example, in case hardening steel. Bagged charcoal is consumed extensively in many large cities. Charcoal briquets are in demand as fuel.

Cord and slab wood have been the accepted material used in making charcoal and its by-products. As small waste wood is materially cheaper than either slab or cord wood, the desirability of utilizing it in carbonization operations has long been recognized. Eight hundred applications have been made at various times at the Patent Office by those who thought they had hit upon a process of carbonizating small waste wood on a commercial scale. The failure of these efforts, up until the Stafford process was proved successful, have been due. in general, to heavy costs of installing and maintaining the complicated mechanical appliances required.

In 1920 after experimental demonstrations at Cambridge, Mass., work was continued in a plant of 200 cords daily capacity at Kingsport, Tenn., which had originally been erected by the National Research Council during the war for chemical experimentation.

The commonly accepted practice of carbonization is to place cord or slab wood in large oven retorts made of steel plate. Fires inthe furnaces beneath are started. Vapor outlets from the oven are provided, these outlets leading to condensers for the recovery of the liquid products of the distillation. The charcoal is withdrawn after the wood has been carbonized.

The retort used in the Stafford method is a cylinder, thirty-two feet high and nine feet in diameter. The cylinder is set vertically and the appliances are such that the wood to be carbonized is fed continuously into the top, while charcoal is withdrawn continuously from the bottom. A remarkable feature of the process is that no heat is applied to the cylinder after the process is once started, the carbonization of the wood being spontaneous under the conditions which the invention maintains.

In previous processes the principal difficulty encountered in the use of small waste wood has been that of transmitting heat to the interior of a mass of finely divided woody material in the retort. Such a mass is a poor conductor of heat. Only the portions of it in contact with the hot walls of the retort can in any reasonable time reach a carbonizing temperature. The numerous attempts to handle such material have had to do principally with overcoming this difficulty.

Formerly, the wood used in carbonization work has always contained moisture. But Prof. Stafford experimented with perfectly dry wood. He found that when the dry wood is heated under his process to the temperature at which the charring begins the carbonization went along to completion without further application of heat from outside sources. This is referred to by chemists as an exothermic process.

The cost of installing a plant under the new plan is considerably less than that of building an oven retort plant of equivalent capacity. It has other advantages among which are low depreciation and low labor and fuel costs as compared with other systems.

It has not yet been demonstrated whether the charcoal made under the Stafford process can be used in the iron industry. The charcoal produced from small waste wood would have to be briquetted for direct use in a blast furnace.

In the working out of the Stafford process in the Pacific Northwest, Douglas fir would be the most available species of wood. It occupies an intermediate position between the hardwoods and the soft or resinous wood, such as the Southern long leaf pine. Hardwoods give a high yield of wood alcohol and acetic acid, while the Southern pine gives low yields of alcohol and acid but a high yield of turpentine oils and resins.

READING REFERENCE- Tomlinson, George H. The manufacture of ethyl alcohol from wood waste. Ottawa, 1919. (Canada Honorary advisory council for Sci. and Ind. research Bulletin no. 7.) Alcohol from wood. Journal of the Franklin Institute. 189:461-2 April, 1920.

TO SAVE DOCK TIMBERS BY SEA WATER TESTS

By testing the saltiness of harbor waters, engineers may be able to tell where the damaging shipworms, which annually destroy millions of dollars worth of dock timbers in the ports of this country and Europe, will direct their attacks. Experiments made [illegible] by H. F. Blum, of the department of zoology of the University of California, demonstrate that salinity often limits the parts of a bay in which certain species of these mollusks can live.

He has kept the Teredo navalis, a very destructive species of shipworm, in wooden tubes through which he ran San Francisco Bay water containing from time to time different amounts of salt. While there are species of shipworms which require the full amount of salt found in normal sea water, about 35 parts per thousand, Mr. Blum has found that these particular shipworms get along very well when there are only about nine parts per thousand or more of salt in the water, but that they do

not like too much, the full amount in the water of the open sea. And he has found that these shipworms can stand for a while a salinity reduced to 5 or 6 parts per 1,000, though their activity and boring is lessened and some of them die. But when the salinity is reduced below this amount most of the shipworms die in a few days.

This is very important in finding out whether this particular species of shipworm is likely to damage the piles of wharves in harbors where the water is made brackish by the fresh water from rivers, it is declared. In such harbors where the salinity is usually about 9 parts per 1000 or more, Teredo navalis may be expected to do a great deal of damage unless something else prevents its living. This pest is found in practically all European and American ports in the so-called temperate zone. Moreover, even if the salinity is reduced below this amount, the Teredo simply plugs up its burrow in the pile and waits until the next spring tide brings in saltier water and it can take a good drink. Even if freshets reduce the salinity to 3 or 4 parts per thousand during the spring and early summer months, a few of the borers, perhaps 10 per cent, will live over and be ready to reproduce prolificly when the freshets are past and the salinity rises. Engineers say that these simple experiments lay the basis for predictions as to where trouble from these wood borers may be expected if tests of the salinity of harbor water are made throughout the year.

DENY HELIUM EXPLODED IN RECENT PLANT BLOW-UP

How can a helium plant explode? This is the question which anyone now naturally asks the scientist in order to explain the fatal accident in the Army helium plant at Langley Field, Va. It has been so often emphasized that helium is the only gas which the Army and Navy can use for balloons without great danger of explosion, that this explosion seems a contradiction of the facts. But the answer is simple - they were not using helium when the plant blew up. This is the official statement of Dr. R. B. Moore, the government expert on helium.

Helium is a perfectly inert gas, not able so far as anyone knows to combine with any other element. It can not burn; it can not explode. These facts are still fully believed; and Dr. Moore's explanation that tests were being made at the Langley plant with other gases makes clear how the accident could have happened.

Fortunately the big Government plant for helium manufacture at Fort Worth, Texas, can be continued in operation without delay or danger of similar explosion. The accident affects only the plant at Langley Field, in which it was intended merely to repurify this gas after use in balloons. This repurification is necessary because air gradually diffuses into the gas through gas bags of even the best balloon fabric. When the amount of air inside exceeds about 10 or 12 per cent, the lifting power of the helium becomes so low that it must be purified or thrown away. And with helium at its present cost it is well worth while to purify it.

A large scale vacuum cleaner system was recently installed in a Chicago grain elevator for the removal of dust in order to reduce the risk from explosions.

The Douglas fir tree chalcid, an insect introduced into Denmark from American seed, is a much greater pest in Europe than in this country.

Thirty years ago there were 2700 drug-containing medicines on the market, while today there are more than 45,000.

LINCOLN INVENTED BOAT BUOY PATENT OFFICE RECORDS SHOW

Abraham Lincoln was an inventor, records of the U. S. Patent Office reveal. On May 22, 1849, he was granted patent no. 6,469 on a device to get river steamboats over shoal water.

The Lincoln method of buoying vessels contemplated collapsible air chambers running along both sides of the boat near the water line. When the craft approached shoal water, the air chambers were to be extended by machinery and filled with air. The additional buoyancy obtained in this way was to enable the boat to ride higher in the water. Once over the shoal, the chambers would be collapsed, the air forced out, and the vessel resumed its normal draft.

It is said that the invention is one of the simplest on file at the Patent Office and although at the time the patent was issued the straight-thinking statesman was forty years old and well embarked on his political career, it is reminiscent of the difficulties of early navigation on the Ohio and Mississippi which Honest Abe knew so well as a flat-boatman.

As an inventor, however, it is claimed that Lincoln was a great statesman.

ASK CONGRESS FOR MEMORIAL AQUARIUM

Congress will be asked to establish in Washington a museum of fisheries and oceanography with laboratories and a public aquarium as a memorial to Spencer Fullerton Baird, first U. S. Commissioner of Fisheries and the secretary of the Smithsonian Institution before Prof. Langley. The 100th anniversary of Baird's birth has just been celebrated. The National Baird Memorial Committee of scientists has also urged the establishment of a fund for the encouragement of research and exploration in the direction in which Baird was a leader. It is also proposed that the name of Baird be given to the Laboratory of the Bureau of Fisheries at Woods Hole, Mass., that he founded.

NEW MINOR PLANET DISCOVERED IN HEAVENS

A new miniature planet has been spotted in the heavens. George H. Peters, observer at the U. S. Naval Observatory, has just announced that he has photographed with the 10-inch refractor an asteroid that is thought to be new. It is now in the constellation of Orion but it is so faint that it can not be seen with the naked eye. Its magnitude is about 10.

The hitherto undiscovered minor planet was first sighted on December 22 at the government observatory as a by-product of the regular observation work, but no announcement was made until a series of positions had been obtained. Mr. Peters has also learned that the planet was independently discovered by observatories in Algeria and Spain about ten days previous to his first observation.

There are now about 1000 of these planetoids known and most of them revolve around the sun in between the orbits of Mars and Jupiter. The largest of them is about 450 miles in diameter but the diameter of the new one has not yet been measured. Mr. Peters has discovered other planetoids before.

WOULD SAVE BUILDINGS BY STANDARDIZING HOSE

The safety of a building in case of fire may hang by a thread -- the thread of the fire-hose couplings, officials of the U. S. Bureau of Standards at Washington point out. They have just made a survey that shows hose being used in various parts of their plant do not fit and declare that this condition is probably typical of what is to be found throughout the country.

They discovered that the couplings in two of the buildings had 11½ threads per inch, agreeing with the standards of the National Screw Thread Commission. In other buildings hose couplings with eight threads per inch were found, with a considerable variation in diameter and fit. Some of the hose would not go together at all. In case of a bad fire, they said, hose must be coupled together and used from many different connections. Steps have been taken to standardize this apparatus at once.

ICE CREAM EATING PIGS FALL VICTIMS TO SCURVY

Ice cream will not prevent scurvy. Dr. Arthur H. Smith of Yale University tried it out on a number of guinea pigs and found that the frozen milk product lacked Vitamin C. Vitamins A and B were present in the ice cream and apparently unaffected by the freezing.

READING REFERENCE- Jaffa, M. E. Food value of ice cream. Creamery 9:54 - July 1920. De Raef Loose leaf manual on milk products. Kansas City, Mo. N. A. Kennedy Supply Co. 1922.

PLANS TO KEEP CHECK ON WIRELESS BABEL

Record will be made of all interference on broadcast wave lengths in the United States, F. H. Schnell, traffic manager of the American Radio Relay League announced at the Second Michigan Convention of the League in session. Observing stations, he said, will be appointed to listen in every evening between 7 and 10:30 and note down interference of any kind. The plan is to be nation wide in its scope and will become operative in the near future.

LACK OF MONEY STALLS AUSTRIAN SCIENCE

The League of Nations committee on intellectual cooperation has issued from Geneva an appeal to the universities and learned societies of all countries to help put Austria on its mental feet again. Pointing out the danger of higher education and learning in that country disappearing from sheer want, the committee calls attention to the fact that on account of the depreciation of Austrian currency, it would take only the equivalent of $185.00 in American money for the Academy of Science in Vienna to resume its publications, while half that amount would enable any of the great scientific associations - such as the Anthropological Society or the Society of Modern Philology - to begin work again.

READING REFERENCE- Nitti, F. Shall Austrian culture die? Nation 115:726-8. Dec. 27, 1922. Appeal from the Committee on intellectual cooperation of the League of Nations. School and Society 16:743-4, Dec. 30, 1922.

TABLOID BOOK REVIEW

HUMAN LIFE As the Biologist Sees It, By Vernon Kellogg, Sc.D., LL.D., Secretary, National Research Council, Sometime Professor in Stanford University. Henry Holt and Company, 1922. 140 pages. $1.50.

The vexed question of human evolution, Dr. Kellogg treats through knowledge and a pleasing style. Carefully avoiding the bigotry of science and the dogmatism of theology, he briefly and frankly presents what biology actually knows about the changes going on in life, and as candidly admits what is yet unknown. Through social inheritance and education we have the control of our own evolution to a certain extent in our own hands, as he points out. This clear and understandable little book should do much to bridge the River of Doubt now running between the scientist and the humanist. Since the author is an authority on evolution and was engaged in Belgian relief work during the German occupation he is able competently to refute the German misapplication of Darwinism in support of their theory that brute force should rule the world.

Mental tests show that light skin negroes as a class are more intelligent than darker skin negroes.

The life of a $2,000 automobile is about 100,000 miles or two cents a mile on good roads; 80,000 miles or 2.5 cents a mile on fair roads; and three cents a mile on poor roads.

John D. Rockefeller recently bought the cottage at Dole, France, in which Pasteur, the great French bacteriologist, was born and presented it to that village for a museum.

A new and destructive disease of flax has been observed during the past few seasons in a number of fields in eastern North Dakota.

The tusks of an ancient elephant were recently found 4 ft. 6 inches below the surface of the earth at Oxford, England.

The principle of the thermometer was discovered by Galileo eighty-seven years after Columbus discovered America.

There is evidence that during the Miocene period of the geological past a sea stretched across what is now northern Argentina and northern Chili and separated southern South America and tropical America.

A portrait of Prof. A. A. Michelson, one of the world's leading physicists and the man who measured the giant star Betelguese, has just been added to the portrait collection of the University of Chicago.

There are more than five hundred industrial laboratories in the United States which are more or less actively engaged in scientific research.

There were twenty million brass vanity cases used in this country last year.

The first three high-speed motion picture cameras in the world were built in 1913 for the U. S. Navy's scientific study of the motions of projectiles in flight.

Thousands of date palms set out by Jesuit missionaries in the Lower California in 1720 are still producing quantities of high class fruit.
